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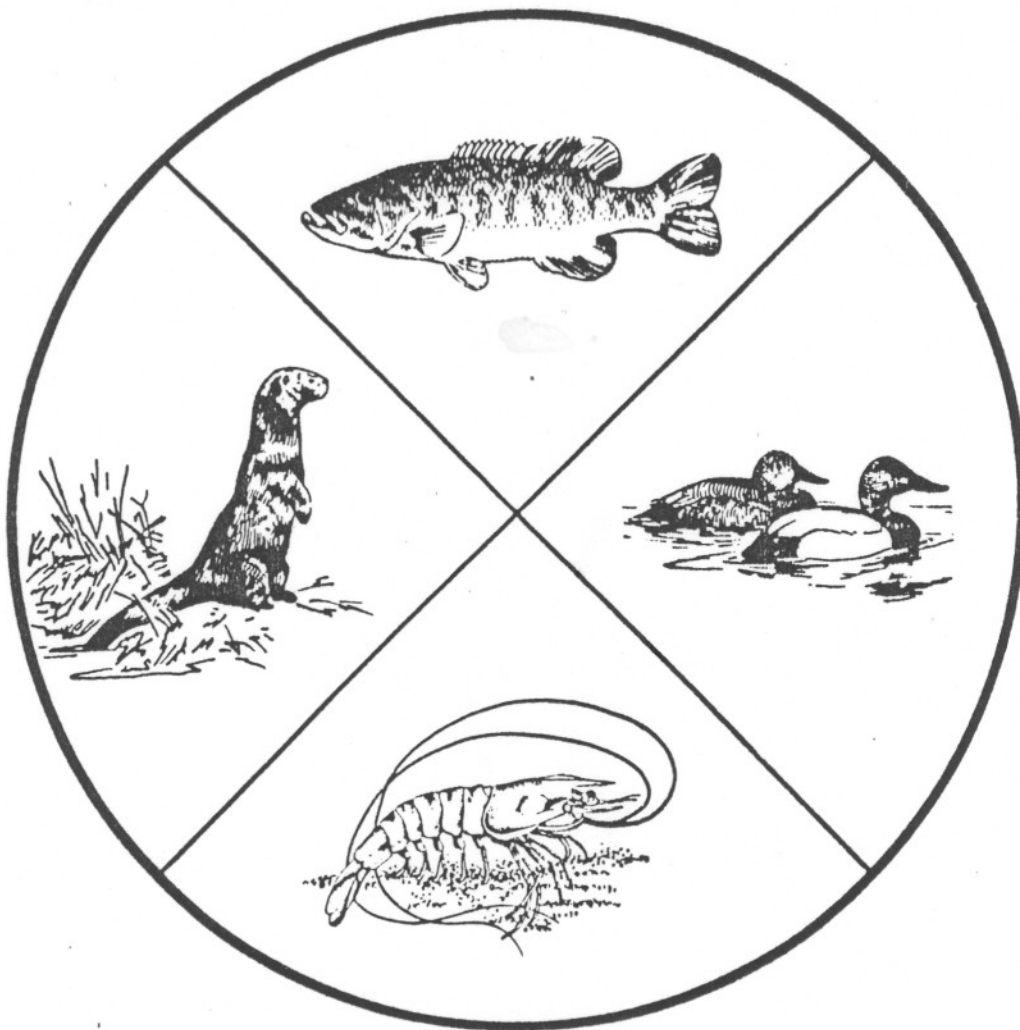
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ENVIRONMENTAL CONTAMINANTS EVALUATION REPORT  
PROPOSED HEADQUARTERS SITE  
ST. VINCENT NATIONAL WILDLIFE REFUGE  
APALACHICOLA, FRANKLIN COUNTY, FLORIDA



Fish and Wildlife Service

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U.S. Department of the Interior

ENVIRONMENTAL CONTAMINANTS EVALUATION REPORT

PROPOSED HEADQUARTERS SITE

ST. VINCENT NATIONAL WILDLIFE REFUGE

APALACHICOLA, FRANKLIN COUNTY, FLORIDA

Prepared By

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Panama City, Florida

January, 1990

## INTRODUCTION

The following report presents the findings of a chemical contaminants evaluation on property proposed for acquisition as headquarters for the St. Vincent National Wildlife Refuge. The site is approximately two acres and is located in Section 1, Township 9 south, Range 8 west, City of Apalachicola, Franklin County, Florida. The site is currently the property of the City and could be transferred to the U.S. Fish and Wildlife Service if it is found acceptable and suitable for Service needs. One consideration involves past usage and the potential accumulation of chemical contaminants and other hazardous materials.

As recently as about 1970, the site was utilized as a location for a municipal sewage treatment plant. As such, the facility had four clarifiers, four sludge drying beds, pumping equipment, and other apparatus as would normally be associated with such a plant (D.O.T. photography, 1972). Ultimately, the plant was closed and disassembled.

Subsequent to municipal use of the site for sewage treatment, the area was used as a dump/storage area for a variety of items including 55 gallon drums, creosote impregnated pilings, metal scrap, vehicle parts, oyster shell, and at least one junked metal boat. Based on the above, it was determined that a chemical contaminant evaluation was proper before any acquisition activities were entered into.

## FIELD METHODS

Soil samples were collected at ten locations at the site (Figure 1 and Photos 1-16). Stations were chosen near points of suspected contamination or at locations that would be down gradient from normal surface or groundwater drainage. At each station, each sample consisted of a composite of three 20 cm long cores of surface soil. At five stations, additional 20 cm cores were collected at a depth of one meter. Cores were collected using 5 cm diameter CAB tubing.

Composite soil samples were placed in pre-cleaned glassware that meets EPA criteria. Samples were labeled, transported back to the Panama City Field Office, and frozen. Samples were shipped within one week of collection.

Evaluation for organic compounds consisted of analyses for 24 individual polynuclear aromatic hydrocarbons (PAHs) and for 31 organochlorine pesticides, derivatives, and PCBs. This work was performed at Texas A & M Research Foundation, College Station, Texas; under Service contract (Appendix 1).

Evaluation for 22 individual metals was done at The Research Triangle Institute, Research Triangle Park, North Carolina (Appendix 2).

## RESULTS

Figure 1 shows locations of soil sampling stations. The downhill gradient is gentle and to the north. Most soil encountered had a high percentage of quartz sand, with only moderate amounts of silts, clays and organic matter. The single exception was station 3, which was poorly drained and had a higher organic content.

### I. Polynuclear Aromatic Hydrocarbons.

Total quantities of PAHs were highest at Station 5 (1.68 ppm) which was located in close proximity to a group of creosote/PCP impregnated marine timbers. Station 4 had the next highest concentration (0.84 ppm) and is near several old 55 gallon drums. Phenanthrene and fluoranthrene were the most abundant compounds at Station 5, although 21 compounds were detected. Fluoranthrene and pyrene were the most abundant compounds at Station 4. Sixteen other PAH compounds were also detected at that station. All other stations had total PAH concentrations of less than 0.56 ppm. These stations had a range of values between 0.09 and 0.55 ppm.

At the five stations where both surface and "deep" samples were collected (stations 6 through 10) comparisons between concentrations revealed that the most commonly occurring compound (2,3,4-trimethyl naphthalene) was about three times as abundant at one meter deep than at the surface. 2,6-dimethyl naphthalene and phenanthrene, the other two most abundant compounds, were about equally abundant at the surface and a meter deep.

The levels of PAHs in the soil samples are not particularly high and their distribution appears spotty and related to the disposal of piles of treated timbers and/or drums and other debris. The most abundant compounds, while they can be toxic to wildlife, are not clearly carcinogenic. The compounds known to be tumorigenic, cocarcinogenic or carcinogenic, fortunately do not appear to be very abundant, based on sampling results. Station five had the only slightly elevated levels of such compounds, including chrysene (0.13 ppm) and benzo-b-fluoranthrene (0.14 ppm).

### II. Organochlorine Pesticides and/or Polychlorinated Biphenyls (PCBs)

Thirty-two organochlorine pesticides, derivatives and PCBs were checked for, and none were detected on the site.

### III. Metals

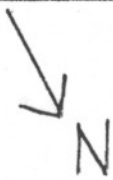
Metals values are expressed in micrograms per gram, dry weight. Basically the area appears free of any major metals contamination. Station four had concentrations of magnesium at 230 ppm and zinc at 115 ppm. Station five had a barium concentration of 127 ppm. None of the five "deep" stations had unusually high metals concentrations.

The most notable exception regarding metals distribution occurred at station six-deep. Here the concentration of mercury was 1.46 ppm. The abundance of mercury in the earth's crust is about 0.05 ppm (the laboratory detection limit is 0.02 ppm). We can only guess at the original source of the mercury found, but it would certainly appear to be anthropogenic. Possibly it is related to the use of the property as a domestic sewage treatment plant. The mercury was located at the down gradient portion of the site, where silts and organics materials are more common. These soil conditions would act as a sink to bind up mercury released from either the old sewage treatment plant or from dumping.

#### RECOMMENDATIONS

The compounds that were tested for are those that would be most commonly associated with an area used for sewage treatment and urban dumping. Based on the results of analyses performed on the fifteen soil samples, I believe that the site is suitable for construction of a Refuge Headquarters facility provided the following actions are accomplished:

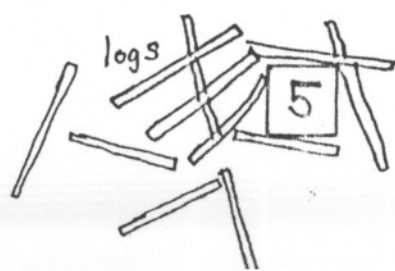
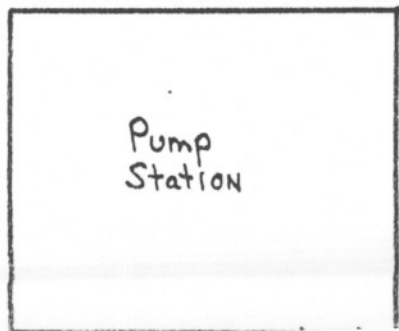
- 1) all drums, scrap metal, and chemically-treated timbers are removed and disposed of properly;
- 2) soil, to a depth of one foot, is removed near any obvious spill areas, and in the vicinity of stations four, five and six, and disposed of properly;
- 3) all potable water supplies for the Refuge Headquarters are obtained from the City municipal water supply; and not from any wells at the site;
- 4) an additional set of soil samples is obtained to determine more exactly the distribution and extent of mercury in the down gradient (northeast) portion of the site.



9TH Street



450'



P/L





Photo 1. Station Four



Photo 2. Station Four

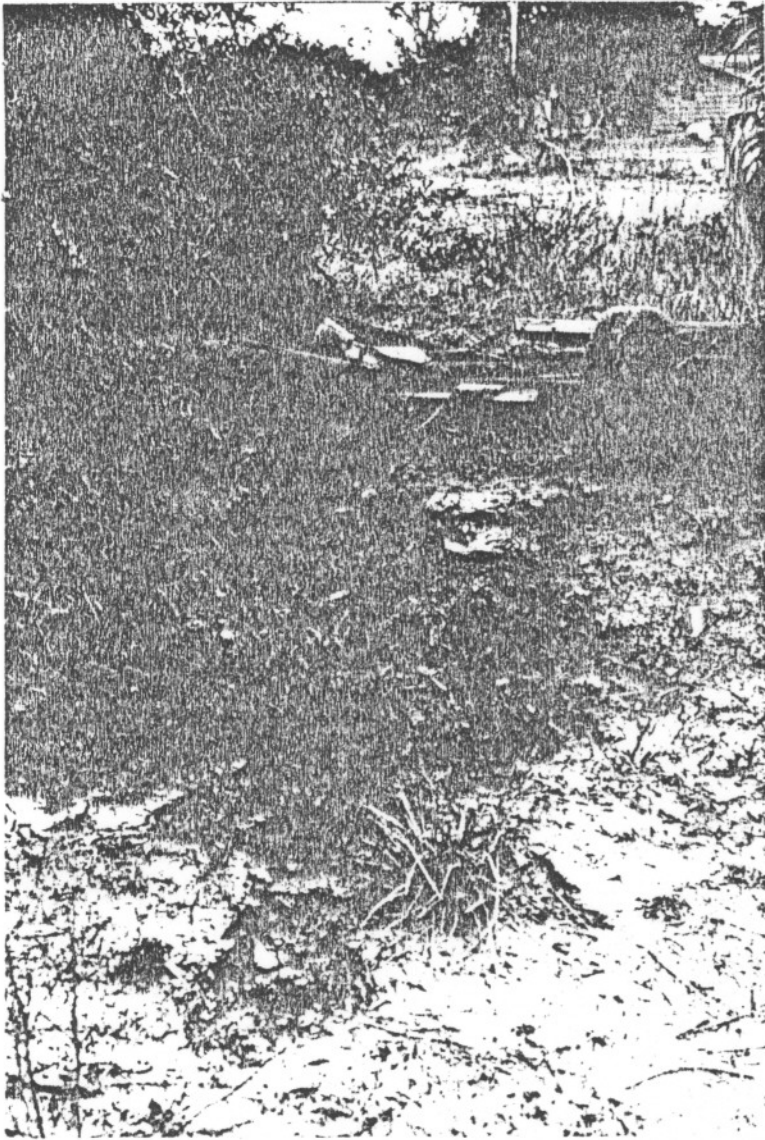


Photo 3. Near Station Four

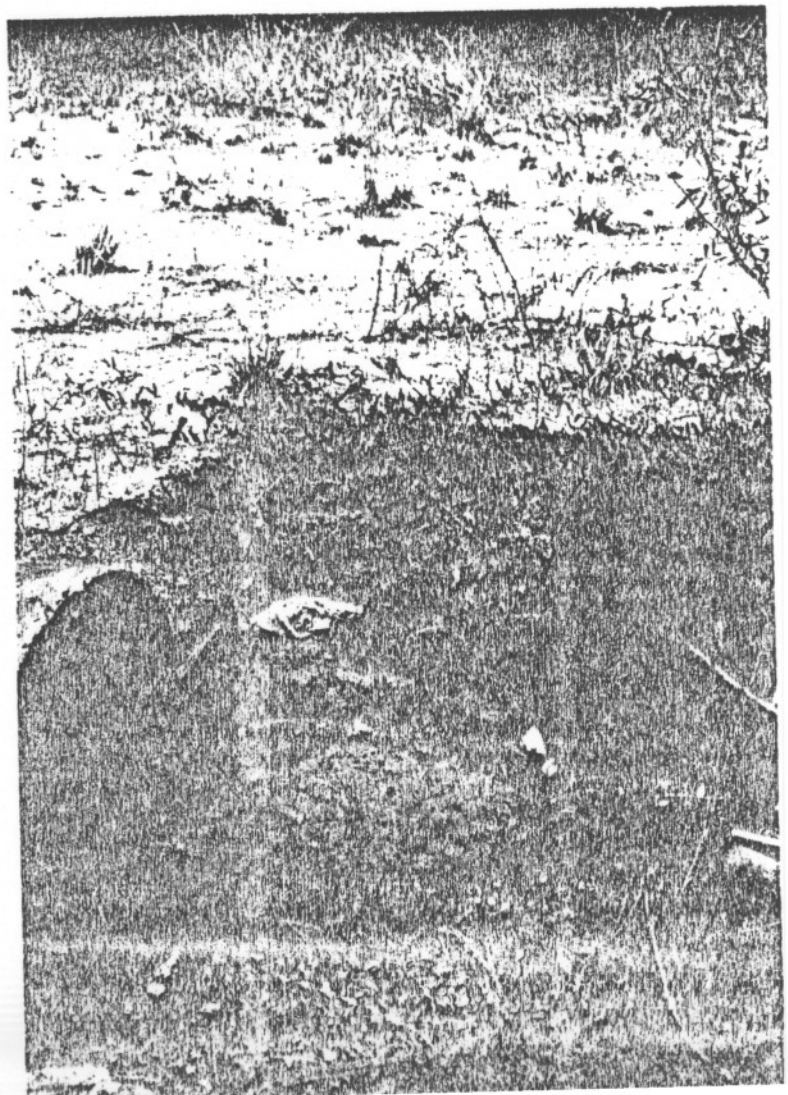


Photo 4. Near Station Four



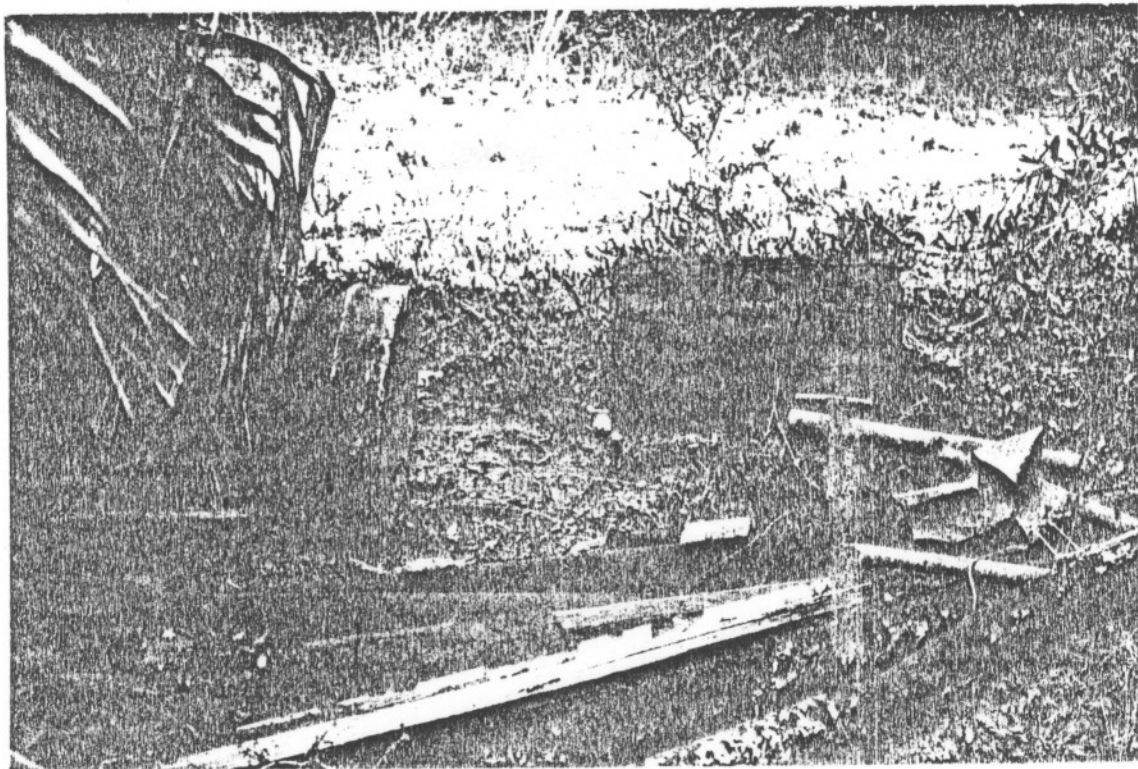


Photo 5. Near Station Four

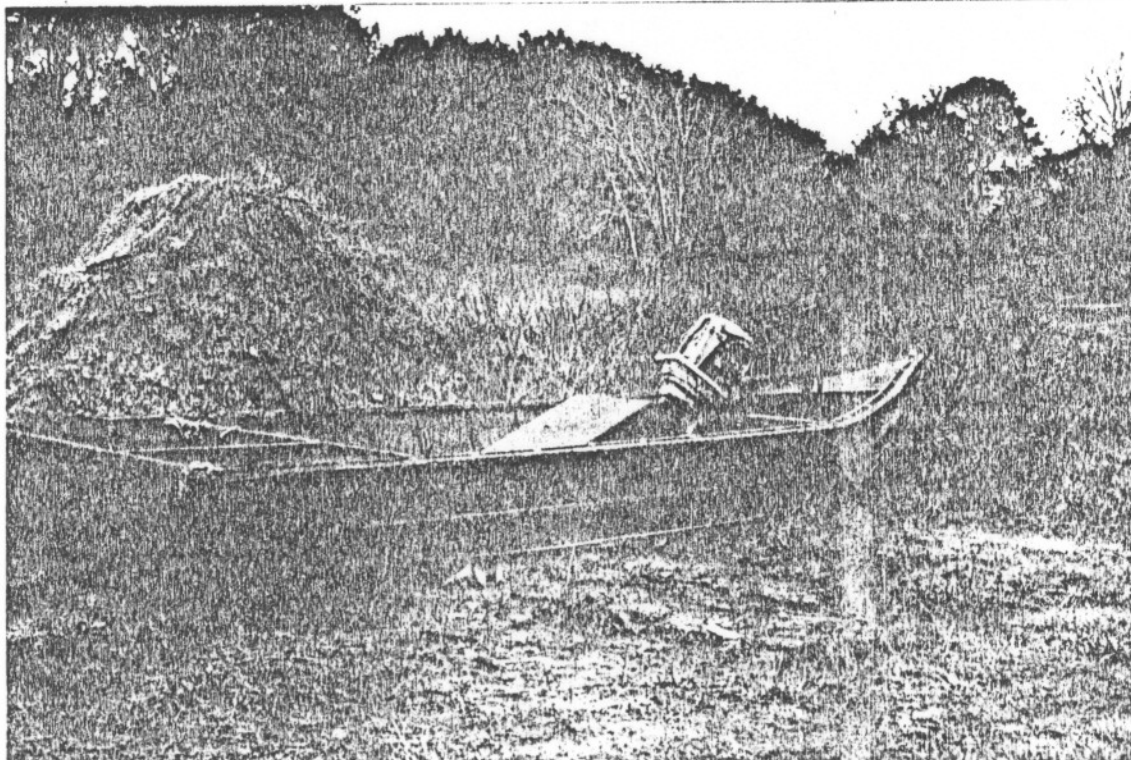


Photo 6. Junked boat



Photo 7. Pump building, west corner

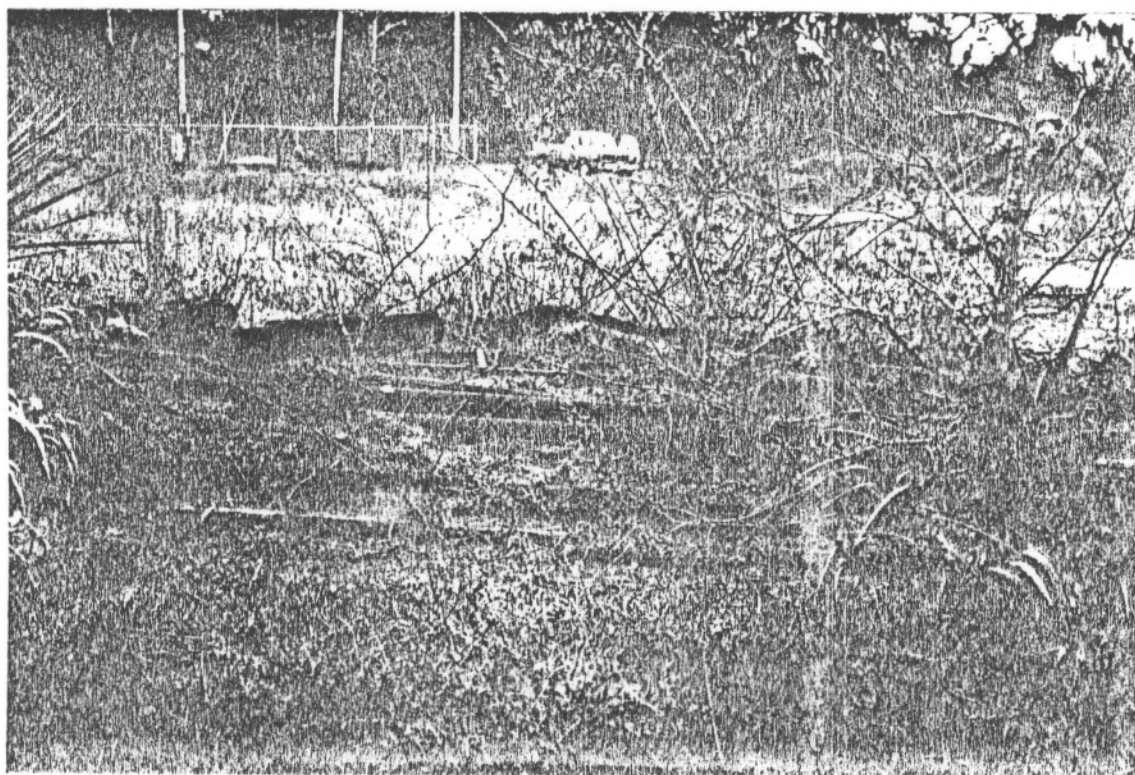


Photo 8. Metal pipe debris





Photo 9. Station Seven



Photo 10. Station Eight



Photo 11. Station Nine

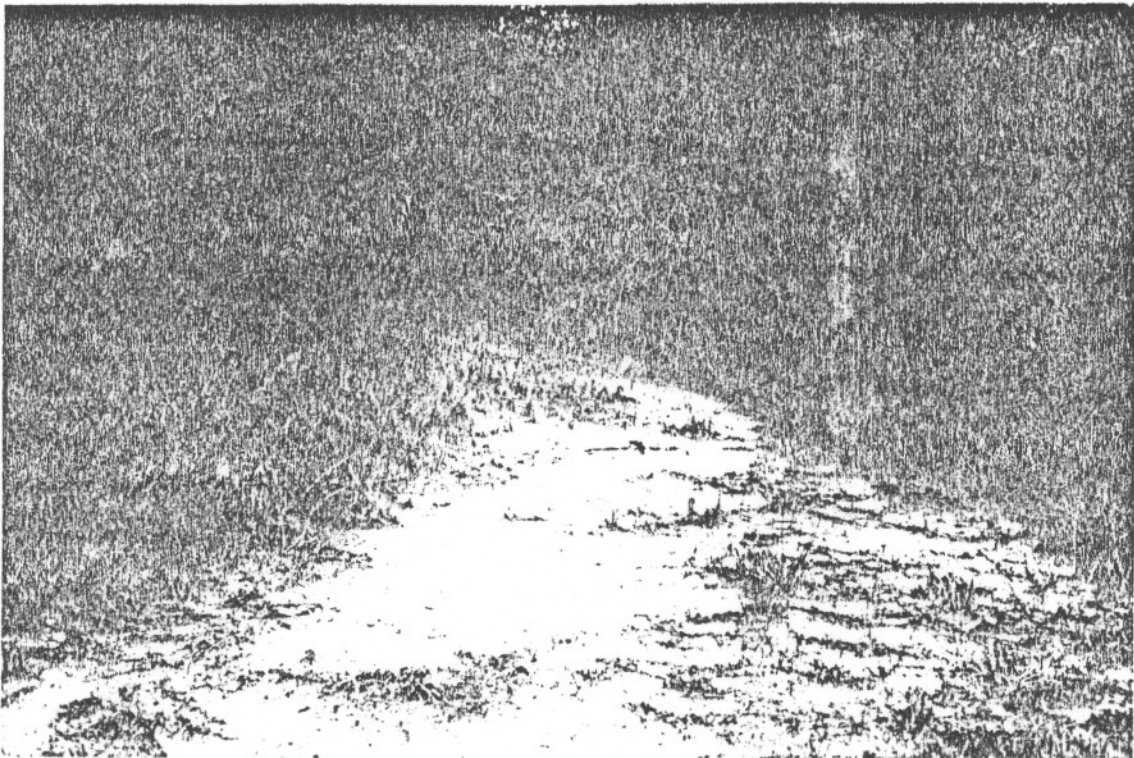


Photo 12. Station Ten



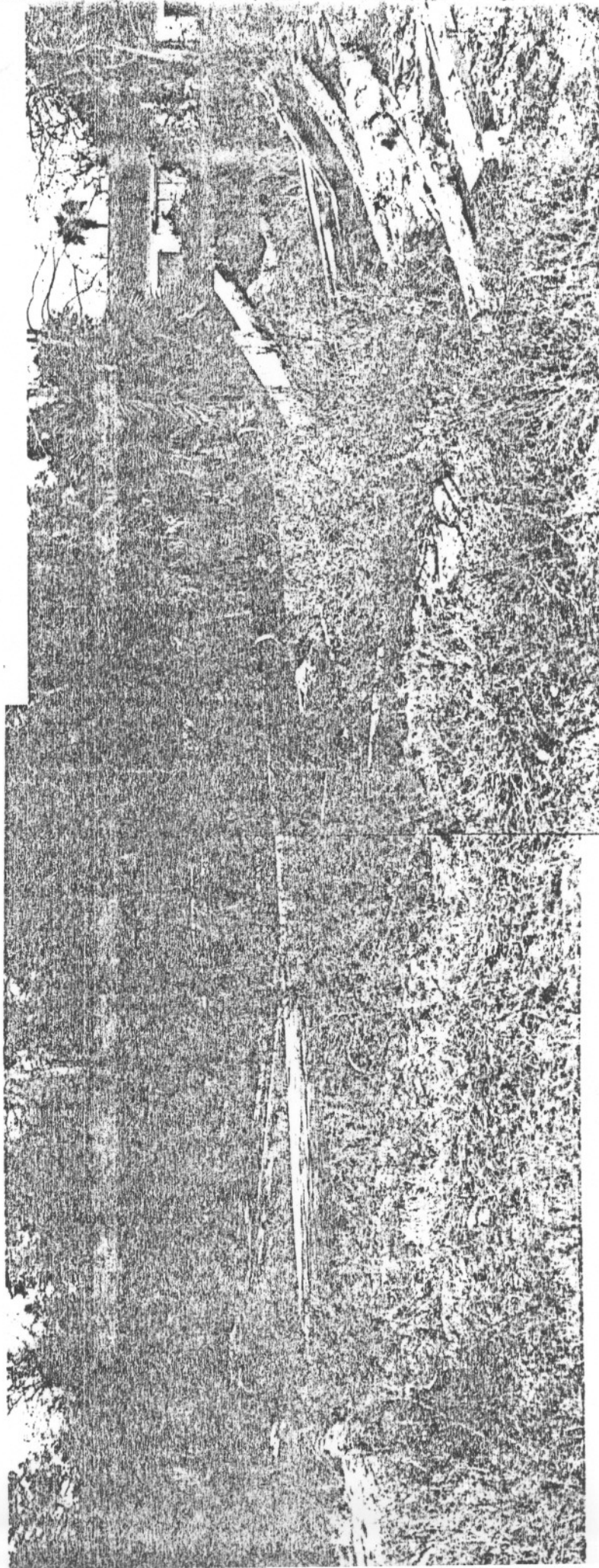


Photo 13. Station Five



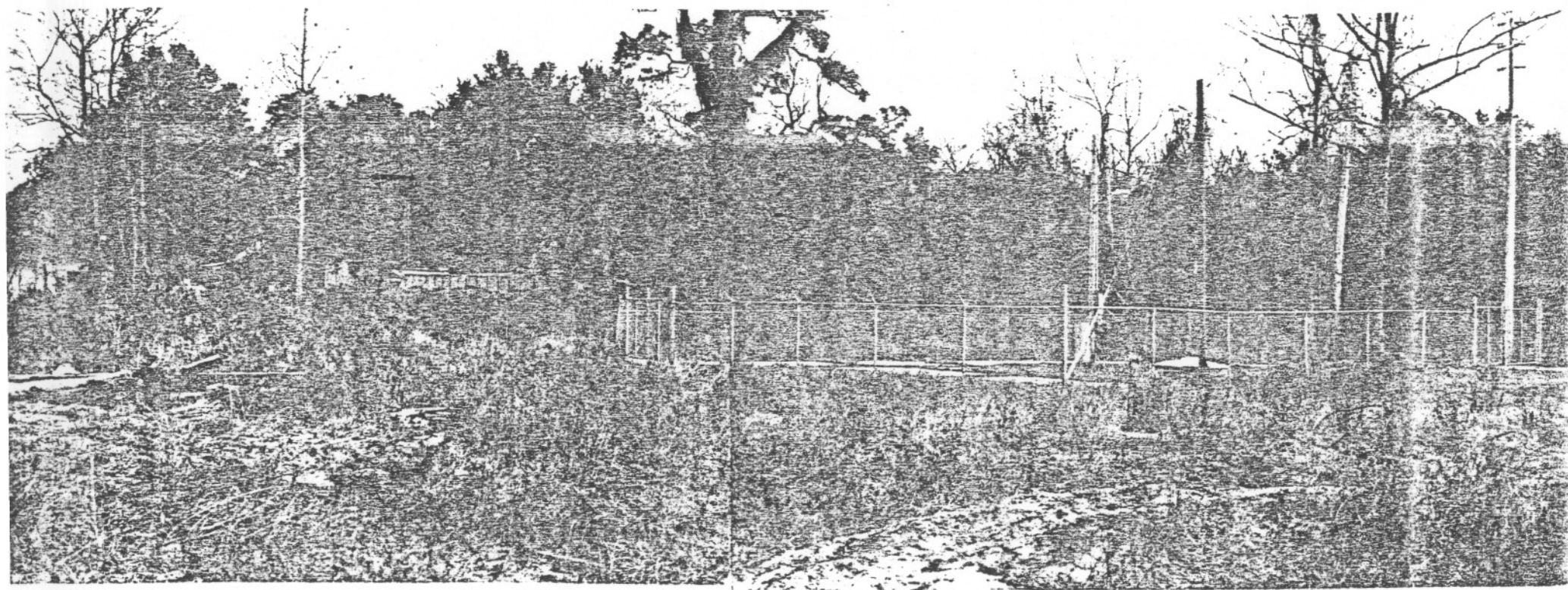


Photo 14. Pump station, northeast  
corner of site near  
Station Three

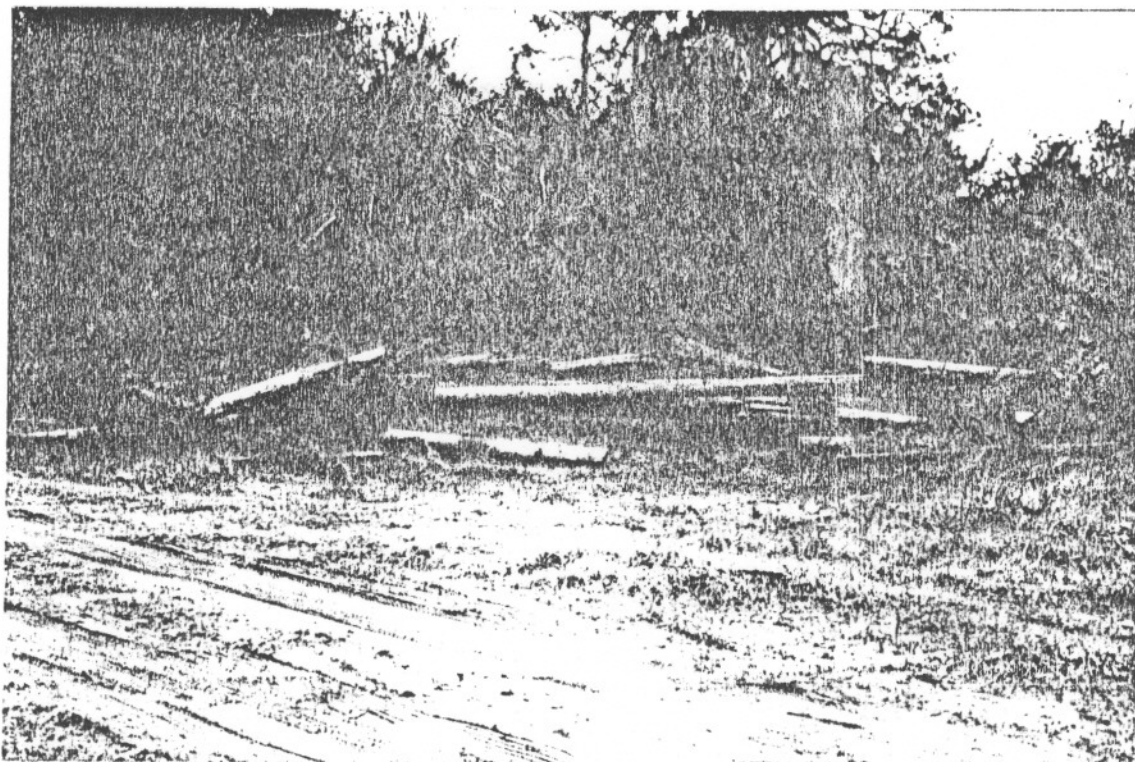


Photo 15. Chemically treated timbers  
near northeast corner of  
site.

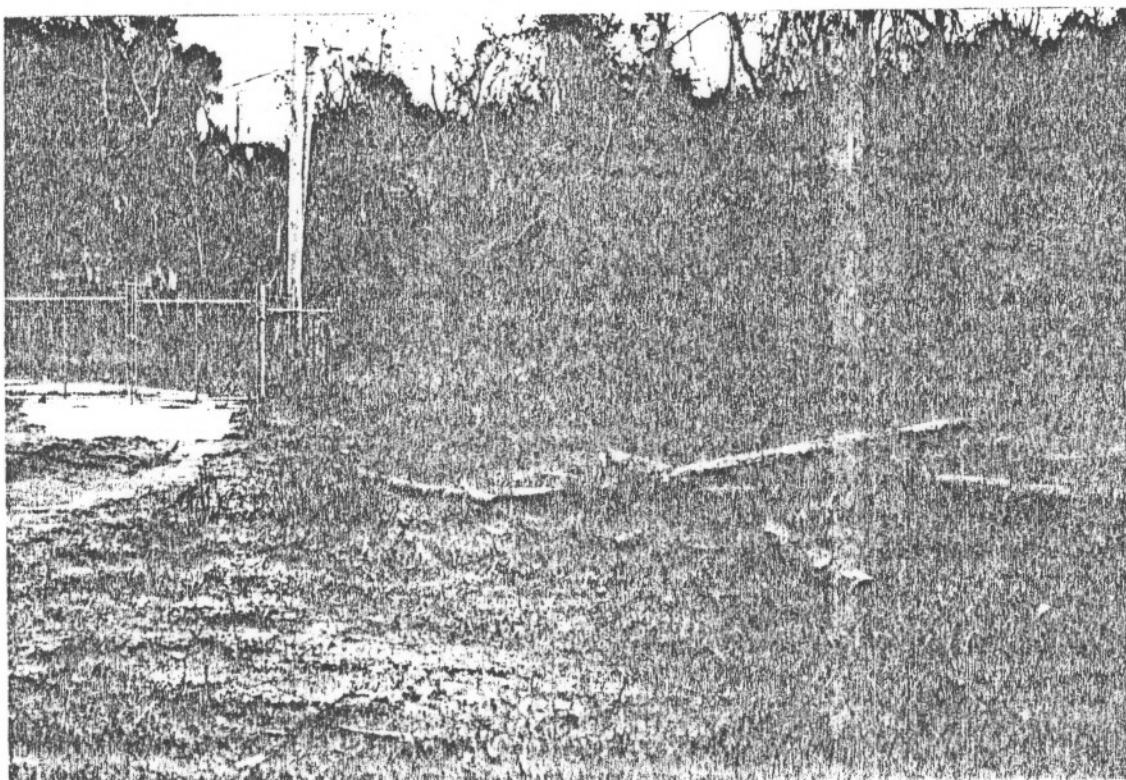


Photo 16. Chemically treated timbers  
near northeast corner of  
site.